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## BEFORE THE ARIZONA CORPORATION COMMISSION

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Arizona Corporation Commission

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IN THE MATTER OF THE COMPETITION )  
IN THE PROVISION OF ELECTRIC )  
SERVICES THROUGHOUT THE STATE OF )  
ARIZONA. )

DOCKET NO. U-0000-94-165

NOTICE OF FILING

Staff hereby files its Staff Report on the Retail  
Electric Competition Workshop in the above-captioned docket.

DATED THIS 20th DAY OF OCTOBER, 1994.

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Original and ten (10) copies  
of the foregoing filed this  
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with:

Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, AZ 85007

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# STAFF REPORT ON THE RETAIL ELECTRIC COMPETITION WORKSHOP

Docket No. U-0000-94-165

October 1994

Utilities Division  
Arizona Corporation Commission  
1200 W. Washington  
Phoenix, Arizona 85007

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Utilities Division  
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## STAFF REPORT ON THE RETAIL ELECTRIC COMPETITION WORKSHOP

On September 7, 1994, the Commission conducted a workshop on retail electric competition whose purpose was for the Commission, the Staff, utilities, and others to learn more about the issues surrounding the potential for competition in the retail supply of electricity. The workshop was intended to be educational. It was Arizona's first step in identifying and addressing policy issues regarding retail competition. Unlike proceedings in other states, where competition proposals are being considered, our effort was designed to obtain information about competition; no proposals are yet being considered.

Box A summarizes the agenda, and the appendix provides a list of persons attending the workshop.

This report presents Staff's synthesis of economic and policy issues, incorporating ideas from the presentations made at the workshop, the literature, and general economic and policy principles. A list of documents reviewed by Staff is presented in the section on references. The report is organized around three topics -- the nature of competition, the market, and the stranded investment problem.

### THE NATURE OF COMPETITION

Figure 1 summarizes three features of competition -- wholesale versus retail competition, central station generation versus distributed energy services, and short run versus long run impacts.

Competition may be at the **wholesale** level or the **retail** level. At the wholesale level, utilities purchase electrical energy and power from suppliers who compete with each other

#### Box A

##### SUMMARY OF WORKSHOP AGENDA

##### THE SOURCES OF LOWER PRICES AND GREATER EFFICIENCY UNDER COMPETITION

Presentation by Raj Kumar & Marianne Estee, Ralston Purina

Presentation by Melvin Bloom, consultant to Phelps Dodge

Presentation by Steve Kean, ENRON

Presentation by Charles Bayless, Tucson Electric Power

Questions and Answers

##### ANCILLARY AND TRANSACTION COSTS OF COMPETITIVE MARKET PARTICIPATION

Presentation by John Underhill, Salt River Project  
Questions and Answers

##### ADVERSE IMPACTS AND THEIR AMELIORATION

Presentation by Tom Austin, Regulatory Assistance Project

Commentary by John Jurewitz, Southern California Edison

Questions and Answers

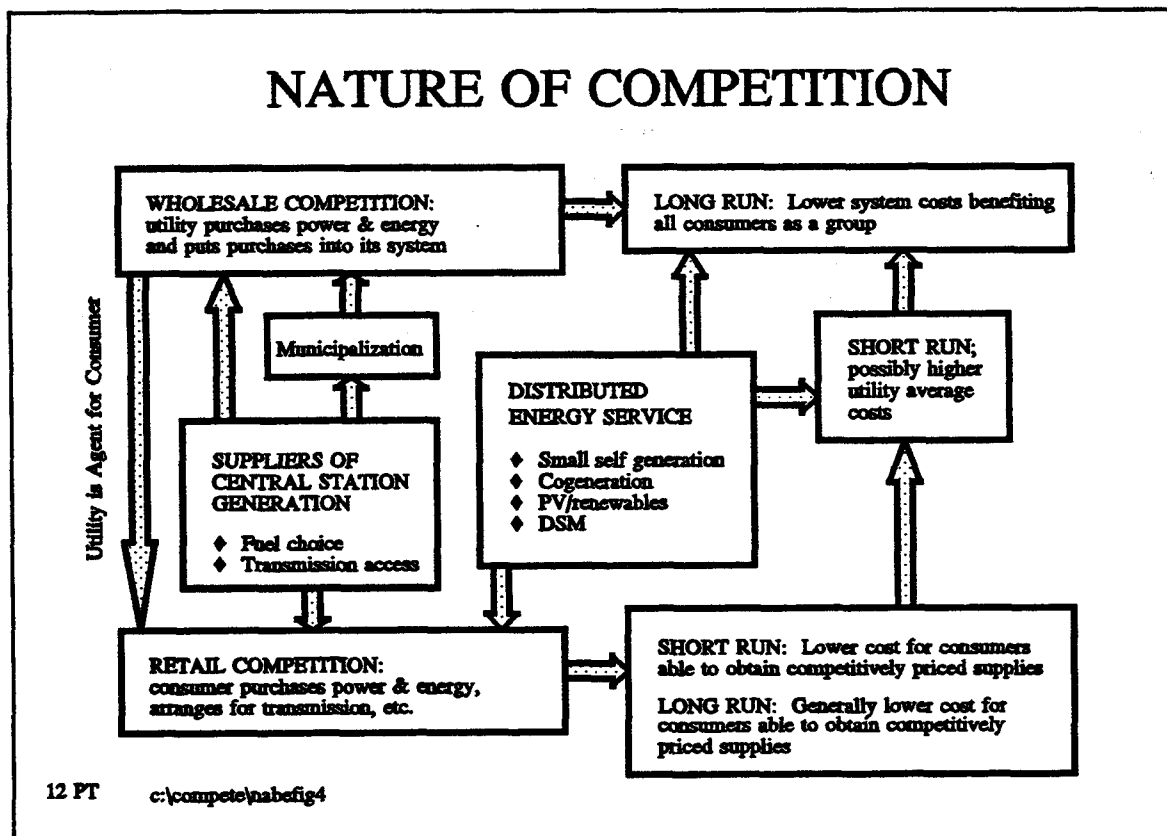


Figure 1

to offer the utility a good deal. Another form of wholesale competition is municipalization of distribution facilities combined with the municipal utility searching out competitive central station supplies.<sup>1</sup>

At the retail level, consumers purchase electrical energy services from suppliers who compete with each other to offer the consumer a good deal.<sup>2</sup> When a consumer purchases

<sup>1</sup> In California, Toward Utility Rate Normalization (TURN) has advocated Community Access to Competitive Electricity instead of retail wheeling. This proposal would allow local governments to establish consumer owned utilities which purchase power in a competitive wholesale market, end electric utility provision of generation, and put DSM and other programs in the hands of the consumer owned utilities. See *PUR Utility Weekly*, September 9, 1994, p. 3.

<sup>2</sup> A utility may act as an agent for a consumer engaging in retail competition. For example, if retail wheeling is not authorized by state regulators, a consumer could still obtain power or energy in a competitive manner, but have the local utility deliver the electricity for a fee.

## Staff Report on the Retail Electric Competition Workshop

electricity from a central generation plant not located at his or her site, transmission arrangements must be made. Transmission issues are discussed below.

Potential competitors include suppliers of **central station generation** or **distributed energy services**. Central station supplies are typically large power plants owned by utilities, independent power producers, or others. If a consumer obtains energy and power from an off-site central station supplier (other than the local utility) the consumer is said to be engaging in retail wheeling. Wheeling refers to transmission of electricity for others over the transmission owners' transmission lines.

Distributed energy services are located at the consumer's site and currently compete with utility central station generation. Distributed services include self generation using conventional technologies, cogeneration, application of photovoltaics or other renewables, and demand side management (DSM). DSM substitutes energy efficiency for energy to achieve various purposes such as lighting, space cooling, refrigeration, torque, space heating, and so on. Utilities may promote or even own some distributed energy services or consumers may purchase these services from other parties.

### Fuel Choices

When obtaining electricity from a central station power plant or plants or from on-site generation, a buyer also gets a particular fuel or fuel mix. For example, a consumer relying solely on natural gas-fired generation units over a long time period is at greater risk of price increases than a consumer obtaining electricity from a diverse set of generation units as would typically be employed by an electric utility.

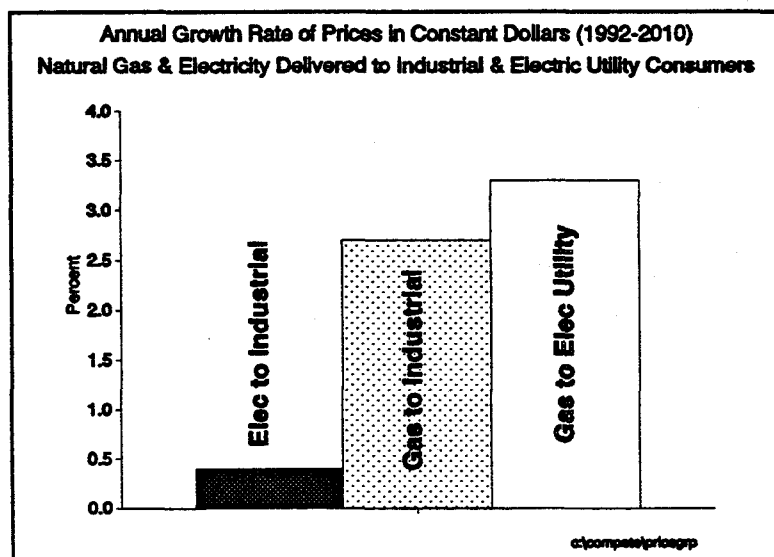


Figure 2

Figure 2 shows the expected annual growth rate in natural gas prices for deliveries to industrial consumers and to electric utilities and the expected annual growth rate in electricity prices for sales to industrial customers over the period 1992 to 2010 estimated by the U.S. Department of

Energy.<sup>3</sup> The forecasts are in constant dollars (with the effects of inflation removed). Constant-dollar electricity prices are forecast to increase much less than constant-dollar natural gas prices.

### Transmission Service

In addition to generation units and fuel types, the buyer and central station seller in a competitive market must arrange for transmission of the power and energy from the power plant to the utility (in the case of wholesale competition) or to the consumer (in the case of retail competition). Because many transmission lines are owned by utilities, access to the transmission system is crucial to retail or wholesale competition involving central station generation. Utilities may seek to protect their interest by making transmission services expensive or impossible to purchase. For competition to be viable, nondiscriminatory transmission access is necessary.

The Federal Energy Regulatory Commission is developing policy guidelines for pricing of transmission service for wholesale wheeling based upon the Energy Policy Act of 1992 (Section 722). This legislation requires utilities that transmit electricity for wholesale wheeling to charge rates which permit the recovery of all costs incurred, which are nondiscriminatory, and which promote economically efficient transmission and generation of electricity.

The Energy Policy Act also requires that the costs for transmission services provided for wholesale wheeling not be recovered from the transmitting utility's existing wholesale, retail, and transmission customers. Policies under development by the FERC include requirements for buyers and sellers of transmission services to provide each other with information and guidelines on pricing of transmission service in cases where there is existing capacity available and where new capacity would have to be built to accommodate a request for transmission service. Regional transmission groups are also being formed to plan for, coordinate, and implement transmission service and provide dispute resolution mechanisms.

### Independent Power Pools

Going one step farther than neutral operation of the transmission system is development of an independent power pool company whose purpose is to facilitate production and delivery of competitively priced power. One such proposal has been made by Southern California Edison Company [Budhreja and Woolf, 1994]. The independent power pool company could be a privately owned clearinghouse which receives bids by each

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<sup>3</sup> Data source: U.S. Department of Energy, Energy Information Administration, *Annual Energy Outlook 1994*, reference case projections, Tables A8 and A13, DOE/EIA-0383(94).

## *Staff Report on the Retail Electric Competition Workshop*

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power producer for sales into the pool and which may dispatch generating units to meet demand at the lowest cost. Buyers and sellers of power could operate through a computerized system of accounting to pay for power purchased and be paid for power sold. Thus, the pool could establish a spot price for electric energy which varies from hour to hour as supply and demand vary. The pool could also be responsible for operating the transmission system, charging buyers for use of that system and compensating owners of transmission capacity for the use of their facilities.

In addition to the pool arrangement, buyers and sellers could also enter into bilateral long term contracts. Because electrons cannot be directed by contract, energy bought and sold under long term contracts would also go through the pool.

### Short Run and Long Run Impacts of Competition

The short run impact of retail competition on consumers obtaining electric energy services in a competitive market is to lower their energy costs.

In contrast, the short run impact of retail competition on a utility is not so sanguine. Assuming the utility did not fully anticipate retail competition when making its most recent supply acquisitions, the short run impact of retail competition on utilities is to increase the average cost of electric utilities. As consumers substitute non-utility sources of power, demand side management, and self generation for utility-supplied power, the utility's kilowatt hour sales will decrease and its historically incurred fixed costs will be spread over fewer kWh sales, thereby raising average cost. This topic is discussed in more detail in the section on stranded investment. The short run lasts until the market value of utility generation and distribution assets equals their remaining costs minus accumulated depreciation. The speed with which this happens depends in part on regulatory decisions regarding stranded investment.

The long run impact of retail competition is likely to be lower energy service costs to all. With the ability to shop around, all parties (including consumers and utilities) will search out the lowest cost supply and demand side resources. If such resources are widely available, then the marginal cost of electric energy services should be about equal for all consumers, regardless of where those electric energy services are coming from.

The fly in the retail competition ointment (over the long run) is that high transaction costs may prevent most consumers from minimizing long run electric energy service costs. Three of the most important transaction costs are:

- ♦ the costs of learning about and seeking out the variety of options available;



## Staff Report on the Retail Electric Competition Workshop

- ♦ the costs of managing price and performance risks associated with alternative resources; and
- ♦ the costs of contracting with and metering and billing thousands of small customers.

Transaction costs are discussed in more detail in the following section.

### MARKET OVERVIEW

Figure 3 summarizes the major elements of a market with retail competition for electricity. The figure indicates that greater efficiency under competition, transaction factors affecting market participation, and regulatory actions determine market outcomes.

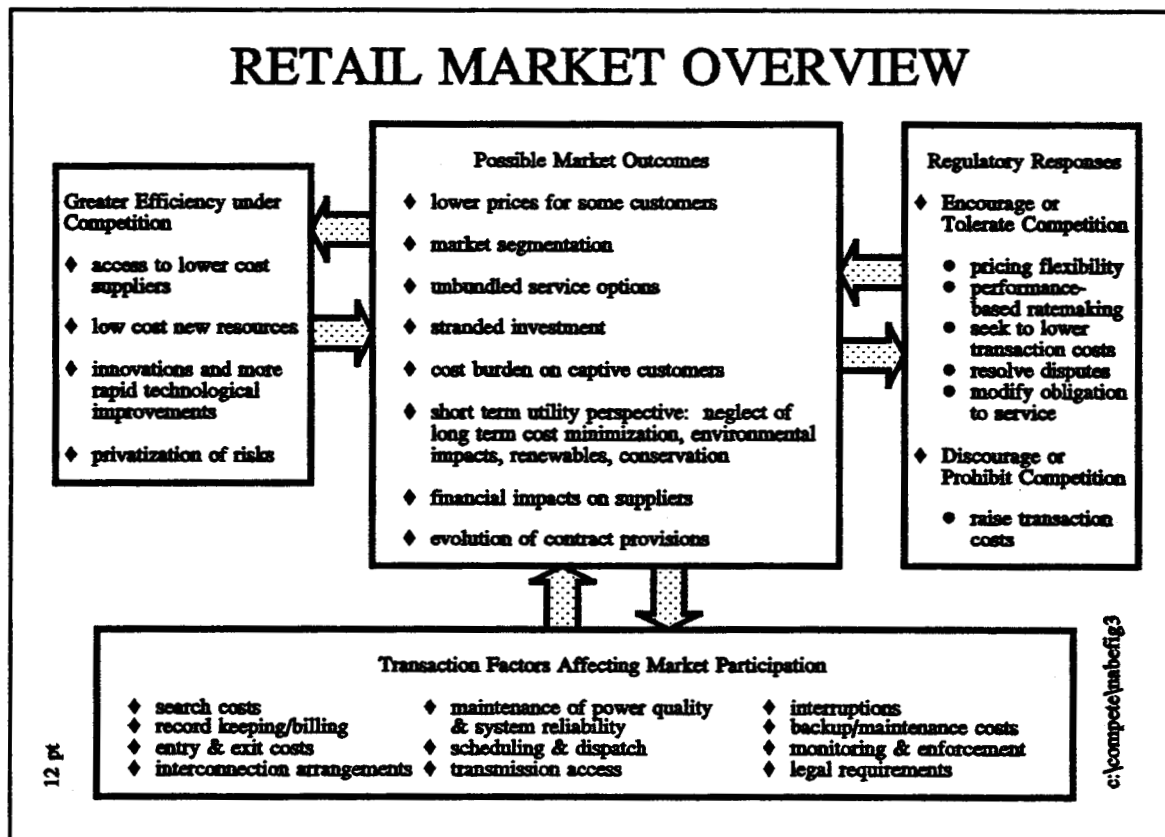


Figure 3

### Sources of Efficiency

Greater efficiency under competition arises from access to lower cost suppliers, the potential for development of low cost new resources, and greater stimuli to innovation in electric generation technology. Suppliers will compete on price, on reliability, and perhaps on other factors. Because of the increased possibility of market entry by innovative suppliers, the rate of technological innovation may be accelerated. In addition, risks associated with resource choices become privatized, involving individual buyers and sellers, instead of being spread over all consumers as is the case under monopoly regulation. Finally, the market may see segmentation of electric services reflecting different degrees of reliability and other features.

Some large industrial and commercial consumers could benefit from retail competition as a way to lower their power costs. For example, Ralston Purina pointed out that its Flagstaff plant faces the highest electricity costs of any of its pet food plants, making the Flagstaff plant less competitive with regard to its other sites. Phelps Dodge Corporation indicated that electric power constitutes about 15 percent of its production costs and that there are suppliers in the southwest whose rates are lower than the rates Phelps Dodge currently pays. If Phelps Dodge could shop around for power it could lower its production costs.

### Transaction Costs

The costs of participating in the market may be substantial and should not be overlooked when evaluating alternatives to the local utility. (Some of these costs may be incurred at present under utility service, but they may change if another supplier is used.) These costs generally involve risk management and information; they include:

- ♦ the costs of searching out and evaluating alternatives;
- ♦ additional record keeping and billing costs associated with deliveries of electricity from suppliers;
- ♦ entry and exit fees charged by suppliers;
- ♦ costs of interconnection arrangements such as disconnection switches to ensure that interruptible consumers are properly interrupted;
- ♦ additional costs of maintaining power quality and transmission and generation system reliability (i.e. the costs of avoiding adverse externalities on the generation and transmission system which affect other consumers, such as

## *Staff Report on the Retail Electric Competition Workshop*

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exceeding the thermal limits on transmission lines, affecting voltage stability, or causing generating units to fall out of synchronization);

- ◆ additional costs of scheduling power deliveries to meet contract requirements;
- ◆ transmission access costs (involving charges levied for using existing transmission lines and charges for constructing additional capacity);
- ◆ the cost of interruptions, whether the power was intended to be interruptible or firm;<sup>4</sup>
- ◆ costs of backup and maintenance service provided by a utility or another party to deal with forced or scheduled outages at the supplier's generation plant or transmission lines;
- ◆ additional costs of executing, monitoring, and enforcing contracts; and
- ◆ costs of complying with legal requirements (some of which are discussed below).

### Market Outcomes

In a competitive market there are no longer "revenue requirements." Rather there are revenues and costs, where revenues are determined by the quantity sold and the market price of the goods or services being offered. Individual sellers' revenues may or may not cover costs.

Market outcomes of retail competition may include lower prices for at least some consumers, market segmentation and unbundled service options,<sup>5</sup> the potential for utility stranded investment (discussed more in the next section), financial impacts on utilities and other suppliers, and evolving contractual arrangements as parties learn more about how to buy and sell electricity.

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<sup>4</sup> If a consumer contracts with a supplier for firm power, but the supplier's plant suffers an outage or the transmission lines serving the consumer suffer an outage, the power may be interrupted.

<sup>5</sup> Market segments might include consumers who want highly reliable, clean power versus consumers willing to take interruptible service, for example. Unbundled service could offer energy or power at specific times, transmission service, back-up service, metering and billing service, etc. as separate items which could be purchased from one supplier or from multiple suppliers, each supplier perhaps offering only one of the services.

## *Staff Report on the Retail Electric Competition Workshop*

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In addition, utilities may react to retail competition by focusing on short term cost-avoiding strategies to be competitive. However, if longer term components of business strategies are neglected, long term cost minimization opportunities and customer service opportunities may be foregone. For example, utilities may cease activities in promoting cost effective demand side management, development and deployment of renewables, and consideration of environmental externalities in the selection of new resources. While the utility may avoid some costs in the short run, it can imperil its long term competitiveness and imperil general social objectives to achieve greater energy efficiency, environmental improvements, and diverse generating resources. It would be ironic if the efficiencies which can be achieved through competition are dissipated by suppliers taking only a short run view and ultimately decreasing efficiency by foregoing DSM, renewables, and environmental improvements.

With regard to DSM, a major reason for utility DSM programs is to overcome the high transaction costs of consumer participation in the DSM market. These transaction costs include:

- ♦ the costs of learning about DSM;
- ♦ the costs of searching out reliable, competitively-priced suppliers of DSM;
- ♦ the costs of managing price and performance risks of DSM; and
- ♦ the costs of obtaining capital necessary for investing in DSM projects.

If utility DSM programs disappear in the pursuit of competitive electricity prices, the transaction costs for DSM may remain high, and cost effective DSM will go unused. The result will be energy inefficiency, that is, energy services more costly than necessary. Competition will have brought about lower prices for some at the expense of energy inefficiency for society.

### The Regulator in the Market

Regulatory responses to retail competition may seek to encourage competition, tolerate competition within boundaries, or discourage retail wheeling. Regulators may worry about such issues as:

- ♦ the potential for short-sighted planning which neglects longer term efficiencies, resource diversity, and environmental quality;
- ♦ the potential for stranded investment which adversely affects utilities or which

## *Staff Report on the Retail Electric Competition Workshop*

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could result in higher rates for utility customers who cannot feasibly obtain electricity in a competitive market;

- ♦ the potential for high transaction costs impeding efficient energy choices including distributed energy service choices;
- ♦ the potential for numerous disputes in obtaining transmission and dealing with stranded investment; and
- ♦ a utility's obligation to serve all who wish to purchase electricity.

To encourage or tolerate retail competition, regulators would have to allow utilities to offer flexible prices to large consumers. In addition, regulators may switch from traditional cost of service regulation to some form of performance based ratemaking. Regulators may also seek to lower transaction costs for obtaining electricity competitively and may increase their role in dispute resolution as disputes among purchasers and sellers occur.

Regulators must also address the question of whether a utility has an obligation to serve consumers who defect and then later wish to return to the utility. In an unregulated market, the option to return to a former supplier might be offered by the former supplier for a reservation charge if the supplier must invest in or maintain assets specific to that consumer.

If regulators want to discourage retail wheeling, they can maintain monopoly service areas or raise the transaction costs of participating in the market by requiring the filing of numerous applications and reports, holding long hearings on every aspect of buying and selling power, and delaying decisions on market entry, rates, terms, and conditions.

### **THE STRANDED INVESTMENT PROBLEM**

The stranded investment problem arises if competitors to the utility succeed in taking away some of the utility's customers or cause the utility to reduce its rates and revenues to meet the competitive price. We define stranded investment as investment in generation, transmission, or distribution facilities whose market value is less than the net book value of those facilities (i.e. less than the cost of the facilities minus accumulated depreciation).

If a utility has stranded investment it may not be able to cover its historically incurred fixed costs that, under a regulated monopoly regime, it would have been likely to cover. If the utility does not fully cover its historical fixed costs in a competitive environment, it may attempt to increase rates to captive customers who cannot feasibly obtain power from

anyone other than the utility.

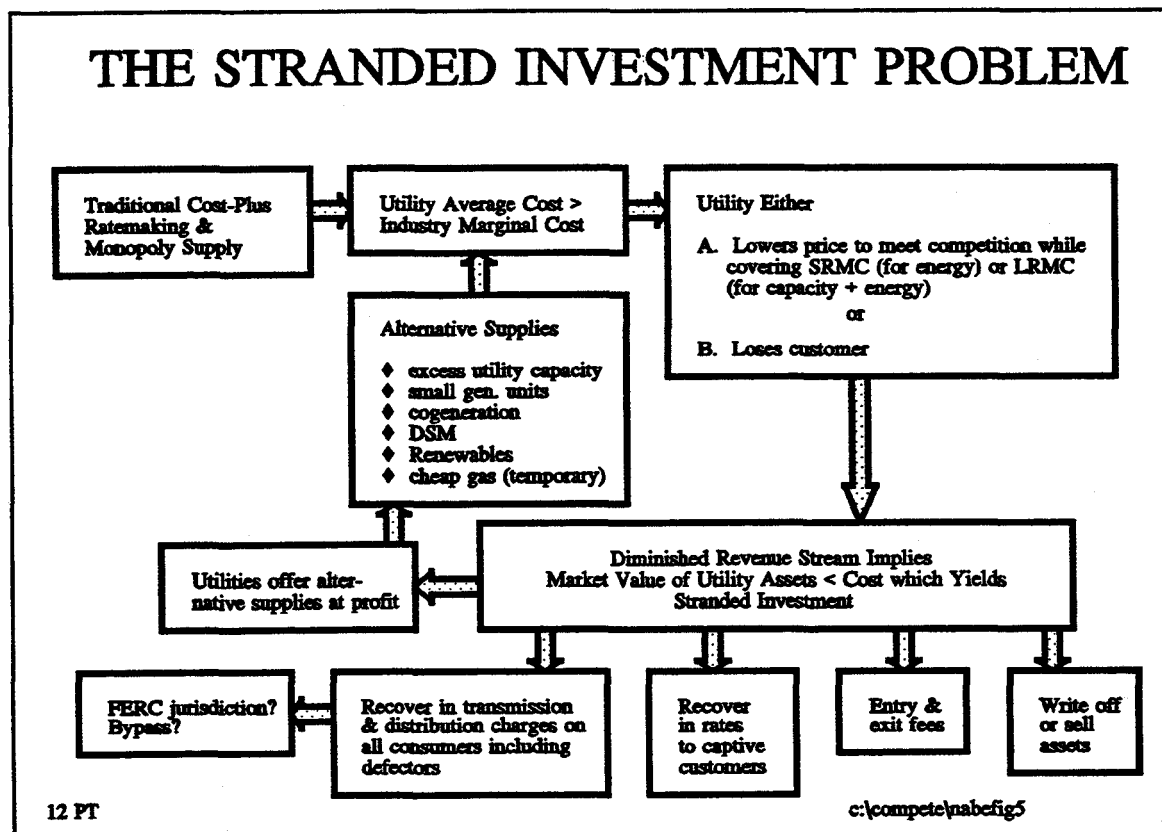


Figure 4

Figure 4 indicates the major components of the stranded investment problem. As a result of traditional cost-plus ratemaking, monopoly supply, technological changes such as small, inexpensive generating units (e.g. 75 MW combustion turbines), cogeneration, DSM, cheap gas, and possibly even renewables, the marginal cost of meeting the demand for electric energy services is less than the utility's average cost. A utility cannot compete with such alternatives and hope to continue to charge its average cost. Thus, utilities will seek to lower their prices to those customers with alternatives and may lose some customers to competitors.

### *Staff Report on the Retail Electric Competition Workshop*

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There are several responses to stranded investment, some favoring the utility and its shareholders, some favoring captive customers, some favoring both. A mixture of responses may ultimately come out of a regulatory review:

- ♦ cause the utility to write off (or write down) some assets;
- ♦ cause the utility to sell some of its assets at market value (less than the net book value);
- ♦ allow utilities to charge entry and exit fees to consumers who opt for non-utility suppliers or who opt to return to the utility from a non-utility supplier;
- ♦ recover the stranded investment via rates charged to captive customers;
- ♦ recover the stranded investment via transmission and distribution charges on all consumers including defectors from the utility, but:
  - such a strategy may be regarded as an illegal infringement on the Federal Energy Regulatory Commission's oversight of transmission rates, and
  - such a strategy would not capture stranded investment attributable to self generation or other bypass of the utility and non-utility central station suppliers; and
- ♦ offset losses due to stranded investment with new lines of business, i.e. with utility expansion of service offerings to include generation and cogeneration facilities located at consumer sites, with DSM offered at a profit, and with renewables where consumers are willing to pay for the renewables or where renewables are the least cost source of supply.

If stranded investments are recovered through entry and exit fees or through transmission or distribution charges, those fees or charges could be valued as the difference between the regulated rate (sufficient to cover historically incurred costs) and the competitive market price. Thus, the consumer participating in retail wheeling would have to search out suppliers whose price (marginal cost) is less than the utility's marginal cost in order to reduce his or her electric bill.

On July 11, 1994, the Federal Energy Regulatory Commission issued a Notice of Proposed Rulemaking regarding recovery of stranded costs by public utilities and transmitting utilities. Among other things, the proposed rule indicates that the FERC

## *Staff Report on the Retail Electric Competition Workshop*

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believes that the recovery of stranded investment due to retail competition is a matter that should be addressed by the states using exit fees or other mechanisms. The FERC does not seem to want to allow recovery of stranded investment due to retail competition through transmission charges as indicated in its two proposed options:

- option a) a public utility may seek recovery of retail stranded costs through rates for transmission services only if the state has not explicitly considered retail stranded costs or if there is a conflict among state regulatory bodies regarding state disposition of stranded investment;
- option b) no public utility may seek recovery of retail stranded costs from the FERC.

### **LEGAL CONSIDERATIONS**

In Arizona, certificates of convenience and necessity for electric utilities indicate that the utility has a monopoly in its service territory. For the Commission to implement retail wheeling, those monopoly restrictions would have to be rescinded. Further, the Commission would have to determine whether any off-site party selling directly to a consumer would require a certificate of convenience and necessity and whether that seller would be subject to rate regulation. For example, if a New Mexico utility were to sell to an industrial consumer in Arizona, would that New Mexico utility have to obtain a certificate from Arizona and have its Arizona rates regulated by this Commission?

### **CONCLUSIONS**

#### Summary of Issues

Regulators are likely to find the following questions central in their treatment of retail competition:

- ♦ how big are the benefits (cost savings) attributable to retail competition;
- ♦ how big is the stranded investment problem and how long will it last;
- ♦ how should the costs of stranded investment be allocated among captive customers, utility shareholders, and consumers who opt out of utility supply;
- ♦ how can neutral transmission system operation be achieved;



## *Staff Report on the Retail Electric Competition Workshop*

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- ♦ how can energy efficiency be achieved over the long run, including the deployment of cost effective demand side management and renewables, and including environmental goals;
- ♦ can the costs of utility DSM and renewables programs be recovered by the same mechanisms as stranded investment is recovered;
- ♦ how can the transaction costs of participating in the market for energy efficiency, including central station generation and distributed energy services, be reduced;
- ♦ what role should regulators play in resolving disputes arising from retail competition;
- ♦ how can system reliability be maintained;
- ♦ how should rates for captive customers be set;
- ♦ what regulation, if any, is appropriate in the competitive portion of the market; and
- ♦ what is the utility's obligation to serve in competitive markets?

For the most part, these issues are familiar both from integrated resource planning and from the introduction of competition in telecommunications and natural gas service. Regulatory evaluation of retail electric competition can benefit from previous experience in these related areas.

### Next Steps

We propose that Staff develop a comprehensive set of options to better inform the Commission about its choices. Three options should be investigated, although variations on these options could be developed:

- 1) Encourage retail competition.
- 2) Tolerate limited retail competition.
- 3) Discourage retail competition by prohibiting retail wheeling and tolerating distributed energy services.

*Staff Report on the Retail Electric Competition Workshop*

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We would focus on:

- ♦ identifying the advantages and disadvantages of each option,
- ♦ characterizing how to implement each option, and
- ♦ developing variations on the options (if appropriate).

Staff will prepare a report and solicit comments on regulatory options, advantages and disadvantages of the options, and implementation of the options.

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**APPENDIX**  
**LIST OF PERSONS ATTENDING WORKSHOP**

<b>Organization</b>	<b>Persons Attending</b>
Commissioners	Marcia Weeks, Renz D. Jennings
Arizona Public Service Company	Bill Post, Shirley Richard, Mike Jones, Brenda Caine, Dennis Beals, Barbara Klemstine, Joe Branom
Tucson Electric Power Company	Susan Wallach, Bradley Carroll, Joe King, Tom Hansen, Charles Bayless, Jim Pignatelli, Byron Clar, Ira Adler, David Lamoreaux
Salt River Project	Laurel Whisler, Bill Twardy, Charles Duckworth, Diane Evans, Glen Reeves, John Underhill, Linda Weber
Citizens Utilities Company	Jeffrey Pasquinelli
Trico Electric Cooperative	Larry Schone
Arizona Electric Power Cooperative	Josie Stukes, Gary Pierson, Donald Kimball, Bob Hewlett, Patricia Cooper, Dirk Minson, Dennis Criswell
Navopache Electric Cooperative	Jim Watson, Wayne Retzlaff, Kent Rhoton, Dennis Hughes, Paul O'Dair
Sulphur Springs Valley Electric Cooperative	Rick Eskue, Howard Bethel, Mike Stringer, Anselmo Torres
Public Service Co. of New Mexico	Duane Farmer, D.K. Brown
Graham County Electric Coop.	Clifford Cauthen
Bonneville Power Administration	Syd Berwager
Grand Canyon State Electric Cooperative Association	Tom Jones
Southern California Gas Co.	George Iwaki
Southwest Gas Corp.	Larry Holly, Ed Giesecking
Dine Power Authority	Troy Tsosie
Navajo Tribal Utility Authority	Walter Wolf

## LIST OF PERSONS ATTENDING WORKSHOP

Organization	Persons Attending
Electrical District # 2	Thomas Martin, Jack Henness
Advanced Utility Concepts	R.W. Moisan
ANR Pipeline Co./Coastal Corp.	Bill Malcolm
Westgroup Marketing Research	Glenn Iwata
Nordic Power	Andy Baardson
Electric Clearinghouse, Inc.	Dan Austin
Andersen Consulting	Michael Britt
Resource Management International	Alan Propper
Washington Water Power Co.	Alan Meyers
Valero Power Service Co.	Harry Watson
Intergen Corp.	Phillip Gennarelli
Siemens Power Corp.	Richard Kinsfather
Howell Power Systems	Brian Beck
Magma Copper Co.	Frank Smatla, Eli Knezovich, Andrew Gregorich
Cyprus Metals	Mike McElrath
Phelps Dodge Corp.	John Zamar, Choi Lee, Melvin Bloom
National Electric Associates	Joe Morrato
Energy Simulation Specialists	Norma Dulin
LG&E Power Development	Al Novatnak
Honeywell	Jeff Sutherland



## LIST OF PERSONS ATTENDING WORKSHOP

Organization	Persons Attending
Barrington Consulting Group	Michael Roach, John Allen
Ralston Purina Co.	Raj Kumar, Marianne Estee
ENRON	Steve Kean
Motorola	John Snyder
Snell & Wilmer	Thomas Mumaw
Brown & Bain	Lex Smith
MZA Utility Consultants	Michele Wynne
Vision Power Service	Mike Rowley, Edmond Lonergan
Christensen & Associates	Sari Macrie
Fort Huachuca	Robert Stynes
Johnston Maynard Grant & Parker	Michael Grant
Martinez & Curtis	Bill Sullivan, Michael Curtis, Anja Wendel
Jennings, Strouss & Salmon	David White
Douglas C. Nelson, P.C.	Doug Nelson
Hitchcock, Hicks & Co.	Chris Hitchcock
Arizona Community Action Association	Betty Pruitt
Land and Water Fund	Eric Blank
Arizona Department of Commerce	Stephen Ahearn, Brian Fellows
California Energy Markets	Libby Brydolf
Residential Utility Consumer Office	Dale Leavesley, Ron Mathis, Jana Brandt, Justin Reidhead, Elaine Williams
Arizona Republic	Guy Webster
City of Phoenix	Bill Murphy
City of Mesa	Jerry Brouwer

## LIST OF PERSONS ATTENDING WORKSHOP

Organization	Persons Attending
Arizona Utility Investors Association	Walter Meek, Janet Taub
International Brotherhood of Electrical Workers	Joe Carl, Terry Miller, D. Thomas
Regulatory Assistance Project	Tom Austin
AARP	Ellen Corkhill
Arizona Chamber of Commerce	Marc Osborn
Commission Staff	Roland James, Prem Bahl, Elizabeth Kushibab, Barbara Wytaske, Mary Martin, Paul Bullis, Brad Borman, Ray Williamson, Kim Clark, David Berry, Janice Alward, Elizabeth Bentley
No organization indicated	Tara Ellman